

## **Appendix B**

# **RAINFALL ANALYSIS**



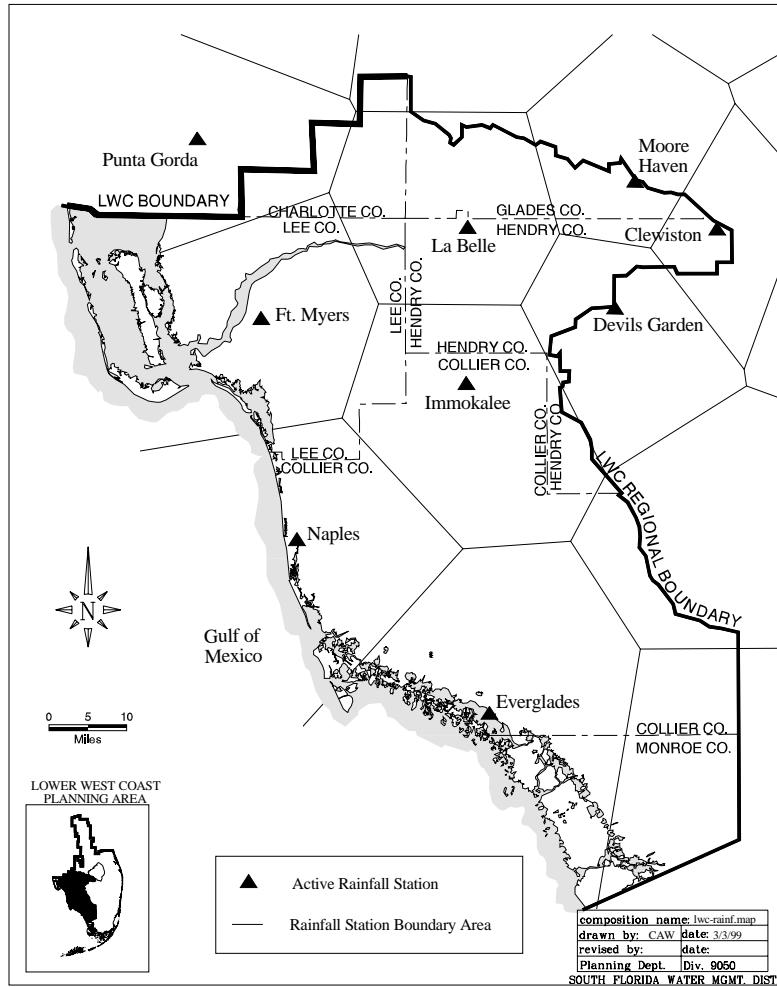
A primary goal of the Lower West Coast (LWC) Water Supply Plan is to identify areas of expected water supply shortage and the frequency with which those shortages may occur. Rainfall is responsible for nearly all surface water inflows and outflows in the Lower West Coast (LWC) Planning Area and is the single most important source of recharge to the Surficial Aquifer. Rainfall is also the single most important variable controlling the occurrence of water shortages in the LWC Planning Area.

## RAINFALL DISTRIBUTION

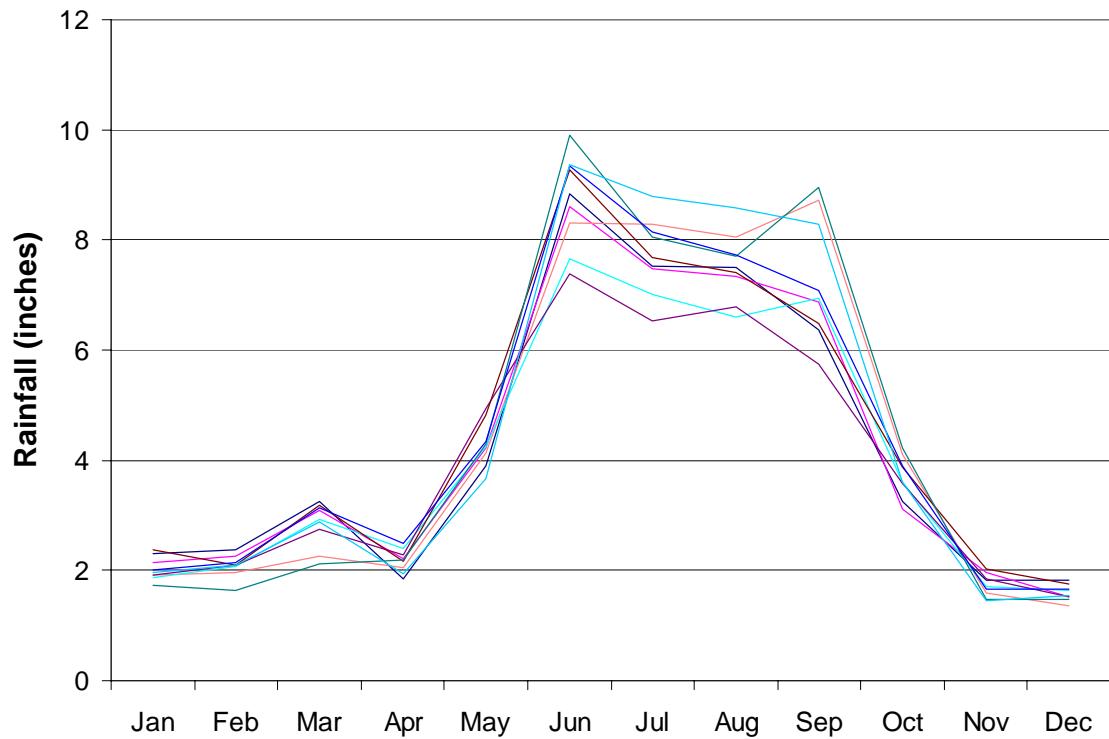
Since rainfall varies from county to county within the LWC Planning Area, nine rainfall stations distributed throughout the LWC Planning Area were used to determine mean rainfall data (**Figure B-1**). These stations were chosen because they have relatively long and reliable records. A summary of the data is presented in **Table B-1**. The table also lists the period of record for each station, as well as the dbkeys used to retrieve the data from the District's DBHYDRO database.

The mean annual rainfall for the LWC Planning Area is approximately 52 inches (**Table B-1**). The mean monthly distribution of rainfall at the nine stations is presented in **Figure B-2**. The wet period begins on June 1 and ends on October 31, with the heaviest rainfall usually occurring in June or September. The dry period begins on November 1 and ends on May 31. December is usually the month with the lowest rainfall.

Monthly and annual rainfall recorded at each station for the entire period of record are presented in **Tables B-2** through **B-10**. The annual and monthly means for each station are also presented in these tables.



**Figure B-1.** Rainfall Stations in the Lower West Coast Planning Area.



**Figure B-2.** Mean Monthly Distribution of Rainfall at Nine Stations in the Lower West Coast Planning Area.

**Table B-1.** Mean Rainfall Data for Rainfall Stations in the Lower West Coast Planning Area.

County	Rainfall Station	Average Annual Rainfall (inches)	Period of Record		Maximum Monthly Rainfall		Minimum Monthly Rainfall		% Rain Falling in Wet Season	Primary DBKEY <sup>a</sup>
			Number of Years	Years	inches	month	inches	month		
Charlotte	Punta Gorda	50.92	30	1968-1997	8.85	Jun	1.83	Nov	65.9	06139
Collier	Everglades	53.74	58	1940-1997	9.89	Jun	1.47	Dec	72.3	06161
	Immokalee	50.84	38	1960-1997	8.61	Jun	1.51	Dec	65.8	06195
	Naples	52.70	56	1942-1997	8.71	Sep	1.35	Dec	71.1	06160
Glades	Moore Haven	48.61	58	1940-1997	7.65	Jun	1.63	Dec	65.3	06124
Hendry	Clewiston	47.36	45	1949-1993	7.39	Jun	1.53	Dec	63.4	06155
	Devils Garden	53.16	42	1956-1997	9.27	Jun	1.74	Dec	65.3	05953
	LaBelle	53.64	58	1940-1997	9.35	Jun	1.65	Dec	67.5	06158
Lee	Fort Myers	54.20	58	1940-1997	9.36	Jun	1.46	Dec	71.3	06193
Overall Average		51.78			8.79		1.58		67.5	

a. Missing data were replaced with countywide mean data.

**Table B-2.** Monthly Mean Rainfall (inches) at the Punta Gorda Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1968	0.11	1.88	0.50	0.58	8.24	14.66	9.68	8.90	5.33	2.95	4.54	0.46	57.83
1969	0.85	2.43	6.34	0.75	6.33	9.06	8.62	7.20	6.08	4.42	1.13	4.31	57.52
1970	4.86	1.41	9.26	0.09	6.52	7.78	3.86	7.96	5.24	0.79	0.30	0.69	48.76
1971	0.59	1.68	0.71	0.66	0.73	6.22	5.86	8.96	7.33	3.49	1.43	0.45	38.11
1972	0.66	2.16	3.70	0.80	7.77	8.33	5.51	10.59	3.71	2.68	4.40	2.55	52.86
1973	6.29	2.05	2.26	2.81	0.69	7.70	9.77	9.98	5.68	0.16	0.11	1.80	49.30
1974	0.10	0.18	0.43	0.63	2.49	23.99	7.89	9.92	4.63	0.56	0.68	2.34	53.84
1976	0.30	1.33	0.53	0.63	5.79	8.38	5.14	3.36	5.94	2.26	1.83	1.38	36.87
1977	2.44	1.15	0.39	0.52	6.03	3.48	8.36	8.39	10.01	2.48	2.08	4.92	50.25
1978	3.06	3.78	2.76	0.30	5.46	8.92	8.19	3.82	1.23	1.97	3.42	3.45	46.36
1979	7.07	0.99	1.17	2.13	7.34	2.00	3.52	9.60	14.03	0.63	0.80	3.45	52.73
1980	2.66	1.11	2.99	2.07	2.88	6.41	9.13	9.33	6.96	2.63	2.96	0.84	49.97
1982	1.45	5.61	4.72	1.67	1.59	7.45	13.15	7.60	10.07	3.33	1.89	0.36	58.89
1983	3.75	11.05	6.14	2.95	0.87	7.04	6.18	6.74	9.69	4.15	3.27	2.60	64.43
1984	0.58	3.31	5.35	3.22	3.74	6.89	10.79	3.50	6.99	2.18	1.04	2.15	49.74
1986	1.44	0.73	5.42	0.47	2.96	11.26	6.00	9.02	3.74	5.77	0.90	4.00	51.71
1987	2.31	2.44	8.18	0.11	3.78	7.89	5.87	6.68	3.44	6.25	5.07	0.59	52.61
1988	2.48	2.02	4.21	2.11	1.27	8.28	8.48	8.41	7.92	1.80	3.25	1.80	52.03
1989	2.25	0.80	1.95	2.05	1.05	5.89	7.26	8.26	5.69	2.13	0.23	2.83	40.39
1990	0.08	2.52	1.96	1.35	3.93	5.21	3.52	7.02	3.33	3.50	0.05	0.38	32.85
1991	5.84	1.87	3.03	1.66	9.45	8.30	7.47	4.19	3.36	1.11	1.75	0.28	48.31
1992	0.96	3.59	3.05	1.18	0.07	19.75	7.89	6.26	5.74	1.97	2.17	1.20	53.83
1993	4.34	2.96	4.04	3.46	0.78	6.37	6.30	4.55	5.10	6.23	0.09	0.64	44.86
1994	1.50	0.84	2.20	5.80	0.75	6.02	7.46	9.18	10.18	1.23	1.34	2.20	48.70
1995	2.79	2.72	1.11	3.49	1.80	17.63	14.22	15.60	7.33	10.88	2.61	0.88	81.06
1996	2.23	0.49	3.24	3.10	6.54	8.60	4.91	4.15	6.76	8.86	0.27	1.07	50.22
1997	1.43	3.14	2.21	5.15	6.32	5.36	8.28	3.41					
Mean	2.31	2.38	3.25	1.84	3.90	8.85	7.53	7.50	6.37	3.25	1.83	1.83	50.92

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-3.** Monthly Mean Rainfall (inches) at the Immokalee Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1960	0.35	1.57	1.85	2.25	5.37	4.96	15.34	8.37	15.08	3.65	3.40	0.74	62.93
1961	3.36	2.00	2.60	1.58	5.69	3.09	4.76	4.43	2.38	0.55	0.80	0.30	31.54
1962	0.70	0.35	2.45	1.45	1.65	12.38	2.08	10.22	10.52	2.05	2.30	0.25	46.40
1963	0.65	3.23	1.42	0.75	7.02	7.19	3.85	6.38	5.88	0.40	2.12	3.15	42.04
1964	2.43	1.95	1.72	2.72	2.10	11.41	4.59	5.93	4.42	3.77	0.60	1.28	42.92
1965	0.70	3.09	1.93	0.34	1.45	8.25	11.17	9.42	3.96	4.40	0.51	0.70	45.92
1966	3.37	3.13	0.23	5.31	5.25	13.81	8.62	6.37	5.53	4.10	0.32	1.51	57.55
1967	1.72	2.79	0.12	0.00	0.60	8.83	14.23	3.95	7.35	3.80	0.50	3.10	46.99
1968	0.05	3.00	0.80	0.50	6.10	16.30	9.70	4.55	7.90	5.75	2.75	0.50	57.90
1969	1.50	2.30	4.00	3.30	2.20	11.10	4.60	8.05	6.90	7.40	2.60	1.65	55.60
1970	2.50	1.25	18.80	0.00	8.95	12.75	2.75	5.85	3.94	2.31	0.21	0.13	59.44
1971	1.23	1.05	0.31	0.39	3.45	11.14	5.89	5.95	7.32	3.04	0.53	0.93	41.23
1972	1.00	2.18	6.48	1.35	4.77	11.30	4.23	10.22	2.35	0.52	5.99	1.13	51.52
1973	3.07	2.85	4.72	1.40	1.28	7.96	9.21	15.99	5.19	1.28	0.36	1.41	54.72
1974	0.24	1.68	1.23	1.31	6.98	16.78	8.41	8.47	7.41	0.46	2.28	0.35	55.60
1975	0.15	0.61	1.04	4.35	4.74	13.96	6.00	5.66	10.44	2.83	0.62	0.36	50.76
1976	0.43	1.16	1.81	2.74	6.30	6.75	5.97	5.77	8.57	2.02	1.73	1.84	45.09
1977	4.33	1.15	0.06	0.20	2.81	6.00	6.88	6.06	6.95	1.36	4.87	2.47	43.14
1978	2.73	1.81	3.69	2.65	3.05	8.75	8.36	6.93	4.70	2.10	0.21	3.62	48.60
1979	4.87	0.52	2.86	4.26	8.69	1.87	5.77	5.04	14.27	1.34	2.80	5.02	57.31
1980	4.35	1.36	3.22	4.05	3.61	1.70	7.80	5.61	5.60	0.65	3.10	0.79	41.84
1981	0.54	1.95	1.34	0.32	0.76	7.51	6.20	10.65	5.15	1.80	1.86	0.25	38.33
1982	0.70	1.75	3.06	3.05	12.44	11.86	11.38	7.05	6.14	4.86	0.58	3.27	66.14
1983	3.81	11.37	5.20	1.57	0.48	8.22	8.28	7.68	7.24	3.17	1.89	5.67	64.58
1984	0.23	3.78	5.14	0.90	9.28	4.04	7.25	9.05	11.24	0.91	6.90	0.04	58.76
1985	0.47	0.37	1.79	4.44	0.35	4.24	6.81	5.28	7.12	3.20	1.44	0.84	36.35
1986	1.77	3.86	4.44	0.34	0.65	10.59	4.55	9.30	5.90	3.00	0.14	2.88	47.42
1987	3.25	3.39	8.04	0.07	8.30	3.53	6.10	4.51	5.87	4.97	9.12	0.14	57.29
1988	1.44	1.89	2.83	0.34	4.70	1.76	7.77	11.02	2.54	0.07	1.60	0.68	36.64
1989	1.28	0.40	4.20	6.47	1.06	10.84	10.70	5.31	3.49	2.00	0.42	1.94	48.11
1990	0.89	2.60	1.21	1.93	4.08	4.73	9.93	5.93	4.57	3.04	1.02	0.03	39.96
1991	8.12	1.81	3.01	2.01	8.87	8.86	9.82	9.15	5.73	5.30	0.91	0.55	64.14
1992	1.98	4.75	3.50	5.40	0.50	17.01	3.52	5.63	2.52	0.95	2.20	0.22	48.18
1993	8.18	3.09	4.01	3.50	2.52	5.69	6.03	5.20	11.56	2.81	0.70	1.28	54.57
1994	3.84	3.49	2.01	2.07	3.21	8.05	6.01	7.85	10.70	3.14	3.91	6.04	60.32
1995	3.21	1.25	1.02	3.70	1.03	14.00	14.80	15.27	13.45	17.12	0.90	0.70	86.45
1996	0.28	0.58	2.46	1.47	5.14	6.15	2.20	5.57	4.96	4.87	0.14	0.28	34.10
1997	1.48	0.34	2.86	6.13	5.44	3.71	12.75	5.47					38.18
Mean	2.14	2.26	3.09	2.23	4.23	8.61	7.48	7.35	6.89	3.11	1.95	1.51	50.84

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-4.** Monthly Mean Rainfall (inches) at the Naples Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1942	2.27	2.93	2.93	3.80	2.62	14.16	5.76	7.12	9.81	0.00	0.50	1.21	53.11
1943	0.10	0.66	0.74	2.17	2.30	12.43	6.74	6.12	7.38	3.23	1.24	0.15	43.26
1944	0.85	0.07	1.06	3.13	2.44	2.45	1.30	7.42	7.23	4.21	0.05	0.39	30.60
1945	2.42	0.34	0.00	2.45	0.13	6.41	8.88	12.29	8.88	3.89	1.03	1.60	48.32
1946	0.75	2.18	0.23	0.00	11.49	6.91	5.55	4.56	9.23	2.03	9.69	2.09	54.71
1947	1.29	2.20	6.31	3.94	2.52	17.97	9.57	9.07	9.68	3.13	3.06	3.03	71.77
1948	3.67	0.00	1.12	2.72	1.95	11.50	12.12	3.35	12.27	3.09	0.35	0.49	52.63
1949	0.00	0.00	0.17	1.45	3.82	9.08	14.10	9.31	13.73	6.93	1.19	0.50	60.28
1950	0.15	1.12	0.58	1.45	2.95	4.21	9.48	7.24	9.48	3.98	1.17	2.24	44.05
1951	0.49	1.12	0.51	3.98	2.10	4.47	4.61	9.54	10.30	17.52	0.01	0.24	54.89
1952	0.63	6.00	1.94	0.98	0.90	5.02	5.90	1.46	8.37	8.22	0.80	0.31	40.53
1953	2.10	1.45	4.79	4.77	0.96	3.82	12.97	10.89	9.72	6.00	0.88	1.67	60.02
1954	0.82	2.37	2.87	4.48	5.70	9.43	8.23	10.37	8.51	1.84	1.27	0.92	56.81
1955	1.52	0.31	1.23	2.02	4.85	7.96	16.42	7.98	11.02	1.49	1.14	1.73	57.67
1956	2.00	0.63	0.05	2.95	7.37	1.56	3.19	3.60	5.69	3.86	0.95	1.17	33.02
1957	0.56	4.56	6.23	2.52	2.91	6.63	6.54	10.23	15.30	3.35	0.55	2.23	61.61
1958	7.28	1.67	5.54	1.59	6.87	9.41	13.40	9.49	7.60	3.41	0.28	3.84	70.38
1959	1.57	1.38	3.36	1.38	9.04	13.06	9.69	12.59	7.26	10.70	1.79	0.68	72.50
1960	0.24	1.08	2.53	1.86	5.32	6.04	13.20	6.10	14.41	5.59	2.85	1.38	60.60
1961	4.96	1.06	0.90	0.36	4.71	8.23	8.95	4.28	3.76	1.53	0.45	0.53	39.72
1962	0.88	0.62	2.76	1.02	5.48	12.72	4.73	14.60	19.54	1.63	2.43	0.21	66.62
1963	0.71	3.42	0.13	0.60	5.49	6.41	3.13	5.16	10.61	1.26	2.25	2.87	42.04
1964	2.28	1.94	2.25	0.66	3.50	6.50	6.54	5.63	4.71	2.05	0.64	0.56	37.26
1965	0.87	2.84	0.76	1.96	2.70	8.28	8.82	9.81	4.79	4.48	0.85	0.93	47.09
1966	3.42	2.30	0.53	4.21	2.12	11.69	7.07	10.94	4.30	3.72	0.18	0.70	51.18
1967	4.17	4.40	1.66	0.00	0.84	3.66	6.88	14.29	11.12	4.40	0.65	3.51	55.58
1968	0.19	2.64	0.54	0.05	4.16	15.28	12.84	8.26	8.98	5.04	1.87	0.63	60.48
1969	2.48	1.18	2.84	1.03	5.59	8.53	12.29	8.59	7.18	7.20	2.17	2.10	61.18
1970	1.95	1.97	13.56	0.00	5.32	6.48	5.26	4.68	13.32	2.87	0.43	0.02	55.86
1971	1.18	1.10	0.11	0.14	1.05	3.38	6.50	9.95	16.62	5.94	1.03	0.21	47.21
1972	0.54	4.55	2.19	2.11	6.63	13.67	3.69	11.21	4.85	1.63	3.59	1.12	55.78
1973	1.86	1.21	1.21	0.86	0.88	6.30	7.18	11.95	9.51	0.70	0.80	1.58	44.04
1974	0.12	0.41	0.00	0.03	5.19	12.83	6.73	5.56	7.59	0.06	2.72	1.14	42.38
1975	0.11	0.40	0.55	0.63	10.67	4.44	10.05	2.26	8.82	3.75	0.58	0.00	42.26
1976	0.70	1.62	0.22	1.27	10.55	14.50	7.40	6.52	5.53	3.21	1.06	1.58	54.16
1977	2.74	1.24	0.05	0.20	4.67	14.51	5.51	8.63	7.44	0.05	2.44	3.02	50.50
1978	2.48	3.51	5.28	2.54	5.31	6.42	6.67	12.10	5.75	1.57	0.18	3.93	55.74
1979	4.87	1.57	1.27	4.00	5.91	2.86	6.83	7.00	10.35	5.45	1.08	3.59	54.78
1980	3.67	1.44	1.85	2.47	3.04	0.91	10.93	11.81	10.79	1.38	2.98	0.75	52.02
1981	0.68	5.65	1.54	0.94	0.99	9.95	7.47	12.83	3.81	0.51	1.18	0.35	45.90
1982	0.59	2.18	1.96	6.68	4.16	14.09	7.84	7.53	8.32	3.16	1.96	2.77	61.24

**Table B-4.** Monthly Mean Rainfall (inches) at the Naples Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1983	3.31	7.99	6.05	2.23	0.64	10.03	6.83	7.25	9.39	3.95	6.06	3.05	66.78
1984	0.49	2.32	4.47	0.54	4.69	7.66	6.52	4.73	10.07	0.56	0.91	0.50	43.46
1985	0.83	0.90	1.55	2.41	0.71	6.77	21.49	5.30	9.78	5.28	2.66	0.89	58.57
1986	1.75	1.94	2.44	0.80	4.98	9.46	3.79	7.77	7.61	5.24	2.11	3.14	51.03
1987	2.13	2.19	8.12	0.14	8.34	7.50	6.54	5.77	3.63	7.06	6.60	0.19	58.21
1988	1.08	0.99	2.58	0.16	1.30	2.31	8.66	9.55	6.25	0.84	1.70	0.35	35.77
1989	0.84	0.09	1.40	4.55	0.91	10.86	11.48	9.37	10.07	4.59	0.32	2.37	56.85
1990	0.09	2.21	0.84	2.77	4.62	10.17	5.69	2.17	7.39	5.13	1.06	0.07	42.21
1991	9.40	2.11	1.86	2.92	10.70	5.64	14.15	8.52	5.73	4.51	1.29	0.55	67.38
1992	0.49	3.69	2.65	2.55	0.91	10.94	7.90	9.22	8.27	0.69	0.57	0.06	47.94
1993	7.66	3.93	2.13	2.25	2.97	6.71	9.19	11.72	3.57	6.87	0.52	0.59	58.11
1994	1.56	1.67	1.11	1.21	0.93	10.86	11.30	7.49	9.46	3.79	2.54	3.58	55.50
1995	4.35	1.74	0.75	3.48	3.98	10.38	10.25	10.10	10.90	15.98	0.59	0.74	73.24
1996	2.10	0.01	1.72	1.71	6.20	2.74	2.60	5.56	3.58	7.40	0.26	0.30	34.18
1997	1.04	0.36	4.04	7.73	4.52	8.42	6.36	4.23					36.70
Mean	1.92	1.95	2.25	2.05	4.14	8.30	8.28	8.05	8.71	4.11	1.59	1.35	52.70

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-5.** Monthly Mean Rainfall (inches) at the Moore Haven Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1940	2.37	3.07	5.55	2.06	3.36	4.96	7.92	10.43	14.13	0.32	0.42	3.91	58.50
1941	5.73	3.86	3.68	5.62	3.30	4.87	13.23	6.71	8.54	2.92	1.66	1.52	61.64
1942	2.80	3.51	4.55	5.64	1.99	9.51	4.81	5.66	4.16	0.03	0.46	1.62	44.74
1943	0.35	0.37	2.72	3.91	3.43	5.02	8.04	8.07	3.07	2.67	1.69	0.20	39.54
1944	0.98	0.12	2.35	5.41	1.52	5.50	8.36	5.42	9.23	3.47	0.07	0.27	42.70
1945	1.82	0.27	0.17	3.20	2.22	7.07	9.47	6.86	8.38	4.92	0.53	0.57	45.48
1946	0.68	0.76	2.53	0.27	7.52	5.74	6.90	4.49	7.77	1.16	2.16	0.90	40.88
1947	0.70	1.64	8.73	0.55	4.80	15.02	6.43	10.74	10.57	6.18	4.33	1.51	71.20
1948	4.16	0.38	0.62	3.15	2.24	4.67	6.00	3.94	21.55	2.42	0.57	0.57	50.27
1949	0.05	0.03	0.46	1.64	3.13	6.56	9.40	12.51	10.22	0.73	0.96	2.74	48.43
1950	0.06	0.72	1.40	2.88	3.29	4.55	7.53	8.86	2.77	5.54	1.57	1.45	40.62
1951	0.15	1.99	0.82	3.31	4.47	5.02	11.63	5.03	6.20	7.74	1.36	0.11	47.83
1952	0.92	5.02	1.50	2.25	10.74	7.56	7.05	8.09	6.35	11.11	0.19	0.46	61.24
1953	1.45	2.57	0.76	4.03	2.78	6.52	9.13	5.65	14.16	9.67	0.55	1.25	58.52
1954	0.38	1.72	2.24	3.52	11.96	12.53	10.58	5.96	6.48	2.63	1.19	1.89	61.08
1955	2.78	1.27	1.26	1.72	3.91	13.17	5.80	3.59	7.07	2.55	0.28	1.18	44.58
1956	0.86	1.04	0.40	1.58	1.13	5.43	3.53	4.67	5.18	6.47	0.13	0.52	30.94
1957	1.74	3.73	6.09	4.06	5.58	4.35	6.59	7.59	9.50	1.20	0.24	7.58	58.25
1958	6.04	0.84	7.03	5.84	4.91	5.93	8.32	4.12	3.09	4.59	0.47	5.77	56.95
1959	1.09	1.08	5.82	1.99	6.07	10.16	5.60	6.12	12.00	12.36	1.29	1.02	64.60
1960	0.31	4.31	1.37	6.55	2.77	11.35	11.11	6.37	11.30	5.99	1.21	0.69	63.33
1961	2.71	2.16	3.56	2.44	6.12	7.17	3.74	4.73	2.64	0.66	1.41	0.33	37.67
1962	0.88	0.47	3.57	2.60	2.33	11.46	5.46	7.71	8.78	1.20	4.03	0.22	48.71
1963	0.86	3.64	0.49	0.80	8.82	6.92	1.08	6.06	3.52	0.65	2.68	4.20	39.72
1964	2.55	4.75	0.61	0.67	2.34	5.20	4.78	8.89	3.46	2.74	0.65	0.72	37.36
1965	0.42	3.59	3.16	1.76	1.11	10.16	5.57	2.78	4.71	9.06	0.34	1.89	44.55
1966	5.47	3.67	0.42	3.01	5.97	9.26	10.93	11.19	6.76	2.62	0.11	0.40	59.81
1967	0.84	1.69	0.24	0.14	2.58	11.27	7.02	3.74	8.53	3.37	0.08	1.95	41.45
1968	0.58	1.72	1.03	0.85	8.64	10.73	7.13	4.23	6.81	3.21	2.25	0.21	47.39
1969	1.76	2.28	6.19	0.69	4.10	10.09	3.68	10.04	8.49	11.75	1.46	3.82	64.35
1970	3.55	2.40	12.63	0.02	2.98	8.74	5.91	7.35	3.46	4.70	0.13	0.28	52.15
1971	0.25	0.51	0.37	0.14	1.50	13.86	7.28	8.29	7.18	6.35	0.90	1.20	47.83
1972	0.30	1.55	2.24	2.34	7.52	10.50	2.77	6.40	0.93	0.40	2.21	1.39	38.55
1973	2.72	2.73	3.34	1.02	5.88	10.48	8.01	5.58	8.43	1.38	0.03	1.52	51.12
1974	0.14	1.36	0.08	0.97	3.00	14.91	18.56	7.99	5.91	1.35	1.64	1.71	57.62
1975	0.20	1.95	0.74	1.22	4.89	5.29	7.00	3.13	11.11	4.88	0.27	0.38	41.06
1976	0.65	1.41	1.59	1.81	4.43	3.10	9.98	12.31	5.74	0.80	1.88	1.99	45.69
1977	4.87	1.38	1.12	0.20	5.17	3.74	6.19	5.51	6.29	1.01	5.33	4.74	45.55
1978	1.78	1.39	2.64	2.06	8.38	5.43	9.32	2.67	6.40	2.23	2.13	4.39	48.82
1979	5.83	0.23	2.30	0.84	7.64	1.09	1.45	5.66	17.69	2.06	1.83	1.96	48.58
1980	2.76	1.08	2.32	5.29	2.23	3.10	7.58	7.61	6.88	1.47	2.20	0.62	43.14

**Table B-5.** Monthly Mean Rainfall (inches) at the Moore Haven Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1981	0.87	1.52	1.28	0.38	2.06	3.33	3.70	10.29	4.54	0.24	1.27	0.15	29.63
1982	0.55	2.81	6.70	3.04	10.13	11.07	10.81	3.09	5.07	5.38	0.26	0.76	59.67
1983	4.22	8.04	5.57	1.75	0.38	7.46	4.36	5.95	3.36	4.29	1.61	2.78	49.77
1984	0.33	4.06	5.20	2.63	6.50	4.92	11.34	6.32	2.84	0.46	2.97	0.09	47.66
1985	0.60	0.41	2.11	7.04	1.11	4.51	8.15	5.34	6.17	1.88	1.41	3.22	41.95
1986	2.34	0.91	6.48	0.24	1.59	12.04	3.59	7.89	6.04	4.91	0.41	2.48	48.92
1987	3.65	1.93	6.59	0.00	1.33	4.18	6.42	3.77	9.91	6.06	8.53	0.59	52.96
1988	1.50	2.57	2.92	0.76	1.54	2.87	6.35	5.81	1.62	0.80	4.15	0.72	31.61
1989	1.62	0.10	2.76	5.02	1.62	5.76	6.45	3.01	8.33	2.93	0.35	2.19	40.14
1990	0.04	2.79	0.68	3.03	2.57	5.47	9.23	9.13	5.42	3.02	0.88	0.39	42.65
1991	5.57	0.90	3.93	4.47	6.58	6.18	6.93	8.02	3.05	4.90	1.85	0.33	52.71
1992	1.02	3.54	3.25	2.79	1.65	28.02	1.77	8.29	1.33	1.33	13.40	0.60	66.99
1993	2.42	0.09	1.56	0.00	1.36	2.54	3.18	6.07	4.09	1.87	0.79	0.90	24.87
1994	3.56	1.88	4.53	2.07	4.62	7.60	3.68	3.09	10.55	3.34	3.26	4.41	52.59
1995	2.56	3.55	1.71	1.99	2.33	6.92	11.44	9.34	5.24	8.03	0.27	0.54	53.92
1996	2.85	1.11	3.81	1.65	7.17	8.50	3.28	6.10	1.75	2.56	0.49	0.64	39.91
1997	1.02	0.74	1.79	4.95	7.56	4.62	5.64	8.15	7.84	0.45	4.54	3.95	51.25
1998	1.16	6.72											
Mean	1.87	2.07	2.92	2.41	4.26	7.65	7.02	6.59	6.94	3.60	1.71	1.63	48.61

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-6.** Monthly Mean Rainfall (inches) at the Clewiston (HGS2) Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1949	0.26	0.64	0.58	0.99	2.50	13.24	6.82	10.78	9.64	0.75	1.10	3.98	51.28
1950	0.11	0.20	1.34	1.81	7.28	3.39	3.71	4.75	3.92	9.03	2.03	1.16	38.73
1951	0.14	1.51	0.81	3.52	3.78	4.47	10.64	7.18	6.22	9.60	1.14	0.26	49.27
1952	0.77	5.44	1.28	1.68	5.34	5.05	4.53	9.42	9.43	8.59	0.32	0.24	52.09
1953	1.77	2.27	0.55	3.25	2.97	7.51	7.02	11.11	10.43	6.75	0.56	0.93	55.12
1954	0.38	1.55	2.66	6.71	6.34	9.98	9.86	5.59	10.35	2.47	2.30	1.69	59.88
1955	1.49	0.92	1.17	1.50	4.87	12.12	7.16	5.52	7.23	1.18	0.58	2.09	45.83
1956	0.80	1.01	0.15	2.19	2.78	4.46	5.41	5.91	2.78	5.38	0.27	0.24	31.38
1957	3.50	2.78	4.11	2.96	11.00	7.88	8.89	5.60	8.64	2.44	1.19	7.91	66.90
1958	7.67	0.64	7.32	4.38	4.85	5.89	7.75	7.43	4.65	3.93	0.44	5.48	60.43
1959	0.91	0.34	6.86	1.92	8.95	10.71	6.50	8.94	8.66	8.54	4.24	0.55	67.12
1960	0.20	4.49	1.16	7.06	1.99	11.55	10.20	6.14	9.28	5.66	1.68	0.95	60.36
1961	3.18	1.63	3.01	3.08	9.43	4.84	5.31	7.25	4.31	1.67	0.43	0.20	44.34
1962	1.56	0.88	2.88	2.29	3.12	7.31	7.40	7.29	10.12	2.14	1.07	0.20	46.26
1963	0.52	3.77	0.12	0.12	4.71	4.12	1.92	4.12	4.58	0.85	1.79	4.20	30.82
1964	2.11	2.46	1.21	5.48	2.83	5.96	5.07	4.53	3.72	3.74	0.37	0.92	38.40
1965	0.67	5.33	2.65	2.92	1.27	12.77	5.76	4.28	6.47	8.07	0.25	1.15	51.59
1966	3.38	2.39	0.56	1.70	5.29	11.99	4.79	13.27	5.89	4.92	0.22	0.49	54.89
1967	0.86	3.70	1.77	0.02	1.82	11.01	6.04	6.50	5.37	3.84	0.12	1.43	42.48
1968	0.27	2.07	0.75	0.80	7.93	10.79	8.82	1.83	5.26	4.20	2.31	0.04	45.07
1969	2.56	1.86	6.52	0.22	4.96	4.91	3.53	7.08	4.71	9.06	1.45	2.24	49.10
1970	2.29	1.89	14.16	0.00	5.57	5.42	5.13	7.41	2.60	2.56	0.03	0.23	47.29
1971	0.45	1.15	0.22	0.13	5.14	3.56	11.08	4.71	4.87	2.75	2.64	0.45	37.15
1972	0.79	1.31	1.50	3.61	5.38	9.00	6.37	5.76	0.79	1.29	2.86	1.32	39.98
1973	2.04	2.76	2.68	0.83	3.88	5.41	7.06	6.71	5.39	1.04	0.20	1.59	39.59
1974	0.17	0.24	0.37	0.89	1.86	16.27	11.63	9.00	4.72	1.91	1.36	1.09	49.51
1975	0.46	2.19	0.55	2.06	9.99	5.88	8.65	3.29	7.89	2.00	0.22	0.18	43.36
1976	0.41	1.76	0.01	1.55	7.55	5.91	3.30	3.31	2.38	1.30	2.24	1.94	31.66
1977	2.98	1.59	2.37	0.24	9.13	5.08	5.09	6.80	8.40	1.94	11.14	4.06	58.82
1978	2.29	1.26	2.53	1.66	8.68	4.87	6.72	9.99	3.24	2.44	3.06	4.06	50.80
1979	5.35	0.16	0.84	0.85	3.60	1.06	2.51	4.72	13.69	1.60	5.74	1.68	41.80
1980	6.19	1.15	2.21	4.70	3.56	3.16	4.66	5.65	3.22	1.58	3.09	0.78	39.95
1981	0.68	1.53	2.17	0.20	2.23	4.70	2.25	11.96	3.31	1.03	2.09	0.10	32.25
1982	0.77	2.46	4.31	1.28	13.13	11.11	6.31	4.54	6.92	1.86	0.70	1.09	54.48
1983	3.97	8.09	5.15	1.16	0.74	9.33	7.63	4.15	3.83	6.69	1.65	3.54	55.93
1984	0.21	3.63	5.64	5.63	9.72	2.95	12.69	3.51	7.68	0.24	1.24	0.05	53.19
1985	0.55	0.36	2.74	3.15	4.64	4.14	9.64	8.55	8.13	4.60	1.50	2.16	50.16
1986	3.21	0.82	5.10	0.25	1.99	13.03	6.75	6.86	5.18	2.11	0.54	2.73	48.57
1987	3.04	1.67	4.58	0.03	0.86	3.83	3.12	7.17	2.83	5.17	9.86	0.31	42.47
1988	1.66	2.05	2.56	0.34	1.96	8.77	10.65	12.78	1.96	0.37	2.35	0.54	45.99
1989	1.12	0.01	3.11	7.67	2.48	4.87	5.23	7.97	8.43	2.86	0.32	1.80	45.87
1990	0.67	2.19	1.77	3.07	5.68	6.70	4.16	6.06	4.34	3.05	0.43	0.90	39.02
1991	5.30	2.35	4.03	4.97	5.63	6.80	6.45	6.08	0.58	2.25	2.64	0.47	47.55
1992	1.13	4.94	3.67	2.80	1.21	15.36	2.99	8.51	2.81	0.37	1.64	0.45	45.88
1993	5.99	2.62	3.89	1.55	3.35	5.33	6.80	5.37	3.78	6.76	1.28	0.76	47.48
1994	2.87												
Mean	1.91	2.09	2.75	2.29	4.93	7.39	6.53	6.79	5.75	3.57	1.84	1.53	47.36

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-7.** Monthly Mean Rainfall (inches) at the Devil's Gardens Rainfall Station<sup>a</sup>.

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1956	0.88	0.97	1.24	1.69	3.99	6.25	7.02	8.46	5.88	3.57	0.63	0.34	40.92
1957	2.35	4.75	5.87	3.20	7.51	12.40	6.75	7.33	8.66	3.32	0.69	8.50	71.33
1958	7.10	1.13	11.07	2.52	3.78	6.46	9.98	4.84	4.98	2.30	0.72	4.95	59.83
1959	1.36	0.75	4.94	2.08	6.66	9.23	9.00	9.96	10.01	12.34	1.36	0.57	68.26
1960	0.22	2.49	1.03	4.58	3.52	10.76	12.95	8.68	12.21	2.02	1.82	0.69	60.97
1961	2.93	1.85	3.22	0.93	8.88	7.69	4.37	5.95	1.97	1.04	0.54	0.55	39.92
1962	1.43	1.47	2.68	1.12	2.76	10.06	5.22	6.71	10.59	4.47	1.48	0.26	48.25
1963	0.91	4.52	0.29	0.36	7.67	7.88	1.53	8.72	4.79	1.17	1.29	3.91	43.04
1964	2.35	2.85	2.01	2.68	3.33	5.00	6.75	7.53	4.76	3.70	0.82	1.94	43.72
1965	0.61	3.50	4.80	1.15	4.04	12.58	10.99	8.52	6.25	6.18	0.77	1.51	60.90
1966	4.81	2.50	0.59	2.94	3.88	16.55	10.71	9.12	3.94	4.38	0.14	0.32	59.88
1967	1.48	4.68	0.75	0.05	2.21	15.60	8.80	2.32	10.71	3.20	0.19	2.07	52.06
1968	0.61	3.13	1.49	0.92	8.90	12.16	9.58	4.10	6.46	4.11	2.36	0.17	53.99
1969	2.14	1.98	5.21	1.34	2.22	15.48	6.98	7.53	3.76	8.64	1.12	2.38	58.78
1970	4.83	1.16	14.13	0.00	11.26	5.85	7.41	4.91	5.21	6.01	0.00	0.30	61.07
1971	0.25	1.35	0.03	0.25	4.40	11.26	7.70	6.83	7.00	4.52	1.46	0.72	45.77
1972	1.75	1.15	4.26	2.07	3.39	10.04	3.40	7.30	2.06	2.98	3.02	1.19	42.61
1973	2.78	1.52	1.58	0.61	6.16	5.66	7.43	4.64	5.62	2.23	0.35	2.13	40.71
1974	0.39	0.76	0.27	1.19	5.88	18.10	11.46	9.05	5.94	0.69	2.98	1.40	58.11
1975	0.24	1.12	1.14	2.80	6.40	11.01	8.80	3.48	11.17	4.95	0.52	0.50	52.13
1976	0.90	1.61	1.47	1.24	10.19	6.33	4.29	5.74	5.68	1.58	1.48	1.97	42.48
1977	3.24	1.07	0.39	0.16	5.07	5.55	7.90	11.58	10.68	1.32	3.87	3.25	54.08
1978	2.35	1.18	2.74	1.44	5.32	7.77	9.64	9.05	5.34	5.14	1.83	4.85	56.65
1979	4.14	0.61	1.44	0.78	6.70	2.64	4.17	10.12	13.76	1.31	5.37	2.15	53.19
1980	5.92	2.21	2.79	6.17	2.69	4.25	8.04	3.63	6.70	0.67	3.04	0.84	46.95
1981	0.48	1.94	1.82	0.25	1.71	9.38	2.35	9.28	4.67	0.21	5.50	0.13	37.72
1982	0.52	2.29	2.85	3.65	11.30	18.87	8.86	5.79	7.00	5.31	1.05	0.44	67.93
1983	3.69	8.68	5.98	2.15	0.95	12.68	5.76	8.77	4.98	4.89	1.98	4.09	64.60
1984	0.17	4.31	3.99	2.60	6.26	6.33	11.52	5.68	7.83	1.12	3.76	0.00	53.57
1985	0.68	0.60	1.48	5.85	1.99	10.78	8.50	3.53	6.95	2.10	1.00	2.10	45.56
1986	3.30	0.72	7.06	0.30	3.02	16.40	6.51	14.58	3.40	8.00	0.80	2.60	66.69
1987	4.80	2.50	7.50	0.00	2.10	4.31	3.10	6.60	7.56	5.30	9.40	0.30	53.47
1988	0.80	2.80	3.50	2.40	0.60	5.00	10.10	12.10	1.05	1.00	7.55	0.00	46.90
1989	0.95	0.00	4.58	2.85	5.20	7.45	3.70	8.13	7.40	1.39	0.40	1.90	43.95
1990	1.00	1.80	0.40	2.45	4.03	5.61	6.95	12.10	1.70	3.30	0.40	0.05	39.79
1991	6.90	1.02	4.90	3.60	8.00	10.00	11.40	5.10	4.48	3.00	2.90	0.31	61.61
1992	6.50	3.00	2.80	4.58	0.90	13.30	6.25	5.40	5.12	1.00	2.21	1.00	52.06
1993	4.50	1.20	0.20	2.60	3.80	3.30	10.93	6.20	7.30	8.40	2.40	1.20	52.03
1994	2.00	2.80	1.90	5.50	2.30	5.30	9.20	7.30	9.70	4.10	4.00	6.25	60.35
1995	5.10	1.10	2.20	3.70	1.30	9.40	10.20	8.70	8.60	13.57	0.00	0.60	64.47
1996	2.89	0.70	4.30	0.70	10.10	8.40	5.40	8.80	4.90	7.40	0.52	0.15	54.26
1997	0.00	2.30	2.67	5.65	2.50	6.17	11.05	6.83	5.43	1.00	4.00	4.64	52.24
Mean	2.39	2.10	3.18	2.17	4.83	9.27	7.68	7.40	6.48	3.88	2.04	1.74	53.16

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-8.** Monthly Mean Rainfall (inches) at the Everglades Rainfall Station.<sup>a</sup>

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
1940	3.08	2.68	1.42	0.65	2.65	12.61	3.78	6.26	16.01	0.42	0.00	5.13	54.69
1941	5.10	3.46	4.61	6.17	0.00	4.22	3.34	4.92	9.38	7.06	2.05	0.00	50.31
1942	2.42	1.90	1.76	0.70	2.88	12.24	5.74	3.74	2.70	0.32	1.35	0.75	36.50
1943	2.04	1.26	0.67	3.86	2.87	10.02	5.79	4.98	3.71	3.99	1.10	0.35	40.64
1944	0.82	0.04	1.25	1.11	6.24	8.58	4.61	6.71	5.09	5.31	0.19	2.29	42.24
1945	3.38	0.92	0.04	5.91	0.97	4.77	10.41	8.03	16.17	4.15	0.65	2.02	57.42
1946	1.02	1.27	1.22	0.45	4.85	10.63	11.99	7.90	10.24	2.00	2.17	2.53	56.27
1947	0.78	1.49	5.77	5.95	3.28	11.88	7.99	8.16	12.38	10.96	7.62	1.93	78.19
1948	1.88	0.14	0.19	2.73	3.45	4.02	12.48	7.74	18.90	3.74	1.57	0.65	57.49
1949	0.04	0.10	0.05	1.17	4.54	12.54	13.03	9.45	13.86	2.81	0.48	3.75	61.82
1950	0.02	1.42	0.22	0.68	2.81	4.18	10.33	7.68	5.31	7.41	1.59	2.61	44.26
1951	0.46	0.24	0.71	4.47	2.41	2.54	10.56	5.76	6.16	2.89	1.07	0.23	37.50
1952	0.43	5.36	3.37	1.21	3.10	7.17	9.13	2.97	15.28	8.94	0.77	1.04	58.77
1953	2.79	1.91	6.20	7.56	2.09	6.54	5.83	8.65	14.44	3.44	1.10	1.53	62.08
1954	0.05	1.58	6.00	7.87	11.33	9.56	7.52	7.28	9.52	3.03	0.79	0.91	65.44
1955	0.73	0.35	0.14	2.17	4.00	13.59	6.63	7.17	9.20	3.64	0.75	2.11	50.48
1956	1.64	0.78	0.09	4.67	8.60	3.43	4.77	6.62	3.84	4.57	0.77	0.14	39.92
1957	0.39	4.84	0.75	1.64	6.98	5.99	6.92	7.34	6.69	6.68	0.14	2.15	50.51
1958	6.81	1.07	5.30	0.81	12.88	8.45	8.68	13.02	8.69	5.11	0.47	4.05	75.34
1959	1.89	0.50	2.06	0.97	8.87	16.41	7.90	8.34	5.35	8.30	3.04	0.36	63.99
1960	0.34	1.42	3.09	3.84	2.24	9.68	17.45	3.12	14.41	5.59	4.16	1.01	66.35
1961	2.15	0.60	0.65	0.00	4.54	6.05	10.41	6.08	7.45	2.40	1.00	0.10	41.43
1962	1.00	0.25	2.30	0.65	2.40	14.35	9.07	7.39	14.12	2.90	1.79	0.67	56.89
1963	1.06	7.83	0.05	0.19	5.82	3.17	2.75	7.58	18.80	1.17	2.43	1.87	52.72
1964	1.49	1.37	0.92	0.23	6.35	10.94	9.70	5.36	6.30	5.63	1.41	0.64	50.34
1965	0.78	2.99	0.66	2.24	1.49	6.54	8.58	6.74	7.74	5.16	0.63	0.37	43.92
1966	3.91	2.09	0.39	3.17	4.54	20.78	14.55	3.45	6.33	4.20	0.17	0.18	63.76
1967	1.20	1.60	0.61	0.00	0.25	13.33	8.63	4.68	9.38	2.97	1.46	1.46	45.57
1968	1.65	2.84	1.14	0.26	9.43	16.12	5.47	7.31	14.59	9.03	1.15	0.15	69.14
1969	1.80	1.53	2.06	2.08	5.45	23.47	5.25	11.12	3.71	6.06	0.57	0.51	63.61
1970	1.79	1.24	15.21	0.00	5.21	3.41	10.94	4.55	5.82	4.76	0.43	0.00	53.36
1971	0.44	0.79	0.12	0.11	3.47	5.53	5.60	10.75	8.89	6.85	0.47	0.66	43.68
1972	1.33	3.03	3.87	1.96	5.31	16.08	5.27	9.29	11.63	1.63	4.91	1.20	65.51
1973	2.58	0.71	2.39	1.06	1.34	8.42	10.46	10.40	7.89	0.31	0.54	2.58	48.68
1974	0.35	0.00	0.00	2.27	5.68	14.75	9.43	6.30	5.74	0.11	0.36	4.15	49.14
1975	0.23	0.09	2.16	1.02	4.26	6.95	5.78	4.57	14.32	4.04	0.23	0.15	43.80
1976	0.34	1.80	1.04	1.90	5.31	10.29	5.45	5.85	5.23	4.44	0.83	2.05	44.53
1977	1.46	0.71	0.03	1.80	4.34	11.80	14.72	6.96	9.58	0.33	1.26	2.57	55.56
1978	2.17	3.92	3.93	1.79	3.39	12.10	6.88	6.48	10.31	5.71	2.91	2.96	62.55
1979	2.42	0.44	0.65	1.63	5.97	7.72	9.19	12.63	10.06	3.62	1.66	2.97	58.96
1980	1.25	1.06	2.10	2.76	4.55	0.60	8.24	8.24	5.47	0.32	2.91	1.04	38.54

**Table B-8. (Continued)** Monthly Mean Rainfall (inches) at the Everglades Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1981	0.69	1.87	1.55	0.04	1.83	7.72	7.04	13.12	8.81	1.83	0.47	0.17	45.14
1982	0.31	1.21	1.74	4.58	5.48	17.71	9.64	11.61	6.21	4.74	1.42	0.65	65.30
1983	6.10	5.84	3.62	0.95	0.66	10.72	8.00	9.11	16.03	12.20	1.78	3.54	78.55
1984	0.45	0.80	3.53	0.85	4.25	5.75	13.99	8.61	6.61	4.17	1.35	0.18	50.54
1985	1.28	0.45	1.14	2.10	3.93	8.26	14.02	3.04	3.11	3.63	2.05	1.19	44.20
1986	2.42	1.94	1.66	1.23	0.49	16.44	4.61	11.60	4.19	5.56	1.27	7.62	59.03
1987	1.01	1.74	6.29	0.04	5.33	5.38	4.77	9.71	7.15	1.76	5.13	0.10	48.41
1988	1.16	1.44	0.95	1.65	2.60	5.63	3.05	6.12	5.73	1.66	1.57	0.98	32.54
1989	0.72	0.21	1.68	3.88	0.23	7.73	8.93	5.82	7.72	4.97	0.38	1.12	43.39
1990	0.10	0.40	0.86	0.81	4.03	8.84	8.42	12.40	5.50	4.18	0.75	0.09	46.38
1991	3.76	2.31	0.56	2.43	4.76	15.01	13.84	5.42	5.75	2.15	0.82	0.55	57.36
1992	0.34	3.93	2.34	3.29	0.48	17.16	4.50	15.22	6.04	1.59	1.36	0.08	56.33
1993	5.56	1.84	1.56	3.46	5.29	3.33	5.80	11.17	12.45	4.75	0.93	0.44	56.58
1994	4.18	1.19	1.58	6.27	3.33	9.81	5.04	5.54	9.80	4.67	6.13	4.25	61.79
1995	2.89	0.30	1.14	3.61	10.18	20.44	5.78	14.64	8.65	9.11	0.20	0.35	77.29
1996	1.85	0.17	1.60	1.67	7.14	14.45	3.73	4.65	5.84	1.71	0.07	0.90	43.78
1997	2.04	1.20	5.54	0.86	2.30	7.78	5.08	7.38					
Mean	1.73	1.63	2.11	2.20	4.28	9.89	8.06	7.70	8.95	4.22	1.48	1.47	53.74

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-9.** Monthly Mean Rainfall (inches) at the LaBelle Rainfall Station.<sup>a</sup>

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
1940	2.50	3.31	4.56	2.04	0.71	5.21	5.91	7.43	14.18	1.22	0.24	3.18	50.49
1941	3.86	3.36	4.92	7.22	3.21	7.51	9.10	5.92	5.88	2.18	2.14	0.67	55.97
1942	1.82	3.00	3.17	3.10	1.63	12.12	5.23	4.53	4.07	0.31	0.27	4.63	43.88
1943	1.05	0.40	2.39	5.42	7.73	9.75	12.47	7.12	2.92	4.01	0.97	2.30	56.53
1944	1.61	0.03	2.78	1.94	3.07	11.20	9.65	9.21	5.53	4.35	0.55	0.23	50.15
1945	1.94	0.56	1.45	1.82	1.24	12.59	15.14	13.71	8.77	5.38	0.18	0.83	63.61
1946	0.70	2.81	2.11	1.05	6.96	10.27	8.66	7.07	7.98	3.33	1.70	0.81	53.45
1947	0.76	1.74	8.84	3.24	4.22	13.87	6.47	9.94	15.91	3.18	2.09	2.06	72.32
1948	4.07	0.00	0.77	3.68	2.42	5.43	9.39	7.94	18.51	3.78	1.29	1.14	58.42
1949	0.00	0.39	0.91	4.75	1.63	8.91	11.98	13.88	9.04	0.83	1.50	0.30	54.12
1950	0.05	0.94	0.72	2.25	2.59	3.33	5.45	6.01	3.69	8.01	1.86	4.39	39.29
1951	0.08	1.80	1.52	4.41	0.73	4.16	11.40	5.09	7.79	10.49	2.08	0.10	49.65
1952	1.03	4.22	1.44	1.26	8.69	5.86	7.51	1.30	9.77	13.46	0.45	0.79	55.78
1953	1.83	2.15	1.62	1.91	1.12	12.93	6.54	13.90	9.80	7.89	0.60	1.55	61.84
1954	0.22	2.76	2.15	5.05	3.64	13.17	12.82	2.21	7.70	2.62	1.96	2.09	56.39
1955	3.63	2.46	0.82	1.09	9.24	11.00	5.89	5.28	6.17	2.87	0.37	2.80	51.62
1956	0.85	1.51	2.78	2.59	2.60	3.82	7.76	7.03	5.94	5.55	0.32	0.92	41.67
1957	1.29	5.59	6.86	3.09	8.16	5.26	6.99	6.90	10.56	2.95	0.59	4.85	63.09
1958	5.36	1.29	7.03	3.44	7.17	8.65	7.40	4.35	4.53	3.58	1.37	4.36	58.53
1959	2.05	1.21	7.35	0.87	5.45	13.58	10.23	6.90	8.00	7.69	1.32	1.07	65.72
1960	0.49	4.09	1.52	3.18	6.48	4.40	13.07	5.25	9.36	4.17	1.58	0.81	54.40
1961	3.16	1.10	1.76	2.08	5.01	4.79	5.73	5.14	3.86	0.66	0.62	0.34	34.25
1962	0.84	1.10	4.84	1.61	3.42	17.75	6.56	7.19	12.52	1.61	4.15	0.32	61.91
1963	0.77	3.93	0.47	0.20	8.26	8.90	3.09	6.48	3.78	1.15	3.96	3.32	44.31
1964	2.47	4.97	0.52	2.84	2.31	8.60	7.64	11.10	3.91	0.87	0.43	0.89	46.55
1965	0.72	2.81	4.03	3.40	0.56	17.11	9.44	9.67	7.51	5.52	0.34	1.09	62.20
1966	2.49	2.91	1.01	3.60	7.57	14.11	5.64	8.31	15.06	3.04	0.14	0.96	64.84
1967	2.98	2.93	0.19	0.13	1.76	10.42	9.35	7.49	5.23	5.28	0.42	2.43	48.61
1968	0.10	1.79	2.22	0.26	9.19	10.87	12.54	7.64	4.29	4.82	2.84	0.12	56.68
1969	1.75	1.77	7.37	0.21	4.47	10.86	5.97	7.56	3.67	6.39	0.53	3.46	54.01
1970	4.83	2.73	13.49	1.27	7.52	2.95	6.56	6.95	2.85	1.64	0.22	0.32	51.33
1971	0.53	1.82	0.41	0.70	7.46	11.79	7.40	8.76	6.41	5.92	0.13	1.04	52.37
1972	0.83	2.40	1.27	3.28	1.14	10.51	4.47	8.02	3.14	2.04	6.61	1.66	45.37
1973	2.61	2.85	3.66	1.55	2.32	5.79	9.30	8.24	5.62	2.23	0.35	1.02	45.54
1974	0.10	0.81	0.04	1.42	7.86	16.34	9.43	6.77	5.62	0.84	1.64	1.72	52.59
1975	0.16	0.75	0.76	3.90	4.16	6.34	8.33	6.00	4.41	6.27	0.29	0.60	41.97
1976	0.17	1.30	3.16	0.99	5.80	4.54	8.16	4.26	7.78	2.06	2.50	1.88	42.60
1977	4.03	0.51	0.12	0.14	5.32	4.18	9.34	7.41	6.76	0.38	2.21	3.85	44.25
1978	2.31	1.97	3.31	0.95	5.16	6.75	9.51	4.47	9.05	0.87	1.74	4.72	50.81
1979	5.64	0.46	1.90	1.33	8.57	6.94	3.09	7.10	14.11	3.30	2.06	3.18	57.68
1980	2.15	1.77	2.54	3.47	3.81	1.41	9.23	9.08	4.50	1.80	3.83	0.75	44.34

**Table B-9. (Continued)** Monthly Mean Rainfall (inches) at the LaBelle Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1981	0.99	1.79	1.51	0.16	0.92	8.47	5.03	11.46	4.78	0.35	1.84	0.55	37.85
1982	0.70	1.14	3.93	2.31	10.68	11.70	5.27	6.89	5.27	1.61	0.22	1.08	50.80
1983	3.87	11.58	7.47	1.59	1.64	15.26	3.10	7.76	7.04	3.67	1.86	3.23	68.07
1984	0.47	2.52	5.29	2.01	5.59	10.61	12.34	2.79	5.61	1.19	5.17	0.59	54.18
1985	0.72	0.61	2.22	4.07	2.39	7.93	6.44	8.05	6.84	1.94	1.62	1.31	44.14
1986	2.99	0.91	5.26	0.27	1.14	13.78	6.84	13.75	6.22	3.72	0.36	3.55	58.79
1987	3.52	2.28	10.55	0.07	4.40	3.19	11.45	4.94	7.76	9.08	9.04	0.52	66.80
1988	2.70	1.84	4.40	0.86	4.35	4.42	5.19	10.64	1.66	0.81	6.34	1.81	45.02
1989	1.14	0.68	4.63	4.09	3.09	9.95	8.04	8.59	7.69	8.51	0.65	1.81	58.87
1990	0.11	3.18	0.26	5.14	3.09	11.76	8.94	11.28	2.23	2.58	0.72	0.18	49.47
1991	7.03	1.26	2.61	4.96	8.07	9.26	12.88	11.12	9.80	3.96	2.18	0.05	73.18
1992	2.21	3.36	3.13	3.81	1.35	16.99	3.87	6.13	5.33	1.24	0.79	1.13	49.34
1993	5.91	1.63	3.01	2.02	0.06	8.26	4.27	11.20	7.59	5.85	1.60	1.10	52.50
1994	2.28	3.92	2.49	3.46	1.50	10.86	5.45	8.72	9.39	5.95	2.47	3.47	59.96
1995	3.56	1.25	1.45	2.75	1.90	14.25	16.73	9.70	6.46	11.58	0.75	0.20	70.58
1996	3.95	0.95	3.78	1.10	6.30	10.80	3.37	11.29	3.37	5.20	1.12	0.00	51.23
1997	0.27	1.42	1.30	9.22	5.01	11.12	13.03	5.50					46.87
Mean	2.00	2.15	3.14	2.49	4.34	9.35	8.14	7.73	7.07	3.89	1.67	1.65	53.64

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

**Table B-10.** Monthly Mean Rainfall (inches) at the Fort Myers Rainfall Station.<sup>a</sup>

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
1940	3.79	4.00	4.41	1.73	0.73	10.52	3.50	8.69	13.02	0.61	0.13	5.42	56.55
1941	3.02	3.82	6.88	7.66	1.16	7.12	15.28	7.46	6.09	0.96	2.48	0.99	62.92
1942	1.60	3.35	2.31	4.54	3.38	11.15	10.66	9.18	5.37	0.50	0.08	1.80	53.92
1943	0.74	0.71	1.61	4.45	5.96	16.06	12.24	8.59	5.68	3.56	2.37	0.48	62.45
1944	1.20	0.00	3.76	0.85	4.00	3.73	5.09	5.89	3.56	5.77	0.00	0.32	34.17
1945	2.19	0.68	0.10	0.21	1.58	11.97	12.41	11.06	5.71	5.19	0.03	1.45	52.58
1946	0.35	2.24	0.19	0.01	6.71	10.19	5.78	6.47	5.21	1.34	3.39	0.57	42.45
1947	0.83	2.92	8.94	2.82	6.47	12.84	11.17	9.40	16.32	4.97	2.05	1.44	80.17
1948	4.16	0.06	0.83	1.57	2.19	5.06	10.08	4.98	14.05	3.90	0.45	0.63	47.96
1949	0.01	0.07	0.13	5.50	4.03	7.53	13.32	7.60	12.70	3.60	1.27	1.62	57.38
1950	0.00	0.08	0.49	0.08	4.14	4.84	6.83	5.93	8.32	3.26	0.02	2.20	36.19
1951	0.38	1.96	1.13	2.71	2.14	9.19	11.44	10.30	3.48	11.91	1.14	0.14	55.92
1952	1.28	4.34	2.05	0.78	1.75	7.95	5.74	8.39	12.35	8.34	0.75	0.71	54.43
1953	1.71	2.01	0.68	2.28	0.41	12.81	9.34	4.32	15.58	6.68	1.07	1.18	58.07
1954	0.30	2.53	2.13	3.49	4.08	4.78	9.19	6.84	10.31	1.82	2.33	1.93	49.73
1955	2.68	1.16	0.32	0.97	3.23	8.53	8.76	4.29	10.50	2.15	0.52	0.85	43.96
1956	0.57	1.06	0.05	3.50	4.76	4.67	5.34	8.03	6.00	4.42	1.35	0.10	39.85
1957	0.78	3.68	4.73	2.69	7.97	4.85	12.52	9.39	8.77	3.19	1.52	3.55	63.64
1958	6.04	1.26	10.31	2.18	6.22	7.37	10.92	4.12	8.89	4.57	1.43	3.36	66.67
1959	1.48	1.72	6.33	1.75	4.74	16.10	6.17	5.75	6.89	12.04	1.92	1.79	66.68
1960	0.46	3.61	1.87	3.83	2.20	5.20	13.76	5.66	11.93	3.01	2.02	0.73	54.28
1961	3.31	1.88	3.58	0.46	4.92	9.75	9.82	13.41	2.80	3.16	1.12	0.53	54.74
1962	0.43	0.54	2.65	1.37	0.34	12.08	6.01	10.89	14.54	5.44	3.01	0.85	58.15
1963	0.81	4.65	0.59	0.27	7.58	7.70	4.06	3.98	7.49	0.05	3.45	2.27	42.90
1964	2.88	3.30	2.12	0.80	0.50	4.58	2.28	4.26	9.45	1.38	0.22	1.06	32.83
1965	1.24	2.99	2.91	2.39	4.70	7.78	12.05	6.57	4.35	4.42	0.58	0.85	50.83
1966	3.39	1.06	0.37	3.03	1.61	12.42	8.22	8.10	4.18	2.14	0.18	0.29	44.99
1967	1.15	2.15	0.72	0.00	1.46	7.41	6.69	15.86	7.04	3.08	0.92	2.91	49.39
1968	0.40	1.94	0.65	0.57	10.32	15.03	9.85	11.44	8.92	7.99	2.88	0.16	70.15
1969	1.44	2.87	4.74	0.15	4.71	10.63	7.11	8.49	16.60	11.03	0.22	3.95	71.94
1970	4.36	2.20	18.58	0.00	6.36	7.47	4.74	4.82	8.29	1.19	0.46	0.37	58.84
1971	0.85	1.55	0.55	0.70	3.77	6.18	9.50	8.06	9.21	6.49	0.16	0.30	47.32
1972	0.77	2.14	4.72	0.27	5.20	7.86	9.72	16.22	2.33	2.20	3.85	1.43	56.71
1973	3.14	2.23	3.89	1.71	0.78	3.99	9.57	8.66	8.38	0.16	0.10	1.72	44.33
1974	0.36	0.81	0.03	0.11	2.40	20.10	14.47	7.70	4.31	0.19	1.46	0.89	52.83
1975	0.26	0.27	1.47	0.80	2.78	10.55	10.81	7.74	12.59	3.05	0.49	0.69	51.50
1976	0.21	1.20	0.91	0.90	5.22	10.59	6.14	8.95	8.81	1.96	2.10	1.68	48.67
1977	3.53	0.15	0.09	0.76	6.51	8.96	9.60	10.58	9.21	0.43	1.50	2.74	54.06
1978	2.48	3.36	3.43	2.35	2.52	6.75	10.29	10.90	5.18	1.45	0.04	4.35	53.10
1979	7.45	1.94	0.43	3.12	5.32	8.31	5.96	14.79	13.65	0.39	0.46	5.16	66.98
1980	2.44	1.04	3.59	1.52	8.73	1.99	7.02	8.79	4.64	1.54	3.15	0.55	45.00

**Table B-10. (Continued)** Monthly Mean Rainfall (inches) at the Fort Myers Rainfall Station.<sup>a</sup>

<b>Year</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Sum</b>
1981	0.80	1.65	1.29	0.08	3.07	11.79	8.24	16.73	6.70	0.40	0.71	0.73	52.19
1982	0.78	3.34	3.32	3.91	2.08	15.01	11.33	10.56	9.29	5.00	1.11	0.27	66.00
1983	4.50	10.82	7.41	1.34	0.62	17.92	4.77	6.46	9.72	4.39	3.66	3.24	74.85
1984	0.15	3.15	6.38	1.09	2.80	8.65	8.99	5.50	7.89	0.65	0.71	0.02	45.98
1985	0.68	0.44	2.06	1.47	1.21	3.76	8.78	7.79	11.71	6.78	2.20	0.66	47.54
1986	0.90	1.01	3.59	0.53	4.01	13.94	6.73	11.16	5.43	3.56	0.78	5.22	56.86
1987	2.29	2.86	5.86	0.14	4.11	9.69	14.38	8.54	7.50	5.10	8.06	0.48	69.01
1988	2.19	1.47	2.44	1.36	0.62	7.16	5.13	9.21	3.15	0.40	2.83	0.26	36.22
1989	1.65	0.36	2.88	0.32	8.10	7.83	8.69	8.95	5.67	2.63	0.65	2.16	49.89
1990	0.47	3.37	0.87	0.39	3.66	9.02	6.47	14.97	7.40	2.28	0.01	0.13	49.04
1991	7.95	0.72	1.13	5.01	8.48	11.22	14.51	5.87	7.98	4.01	0.32	0.30	67.50
1992	1.75	3.89	4.87	2.08	0.97	18.73	8.59	7.59	3.68	1.24	1.19	0.87	55.45
1993	5.36	3.35	3.61	2.40	2.71	6.63	7.23	6.57	8.29	6.85	0.78	0.78	54.56
1994	2.92	2.17	0.99	5.68	0.34	4.73	9.70	9.18	7.67	2.96	2.50	3.82	52.66
1995	3.12	1.40	0.88	5.34	1.38	13.97	12.14	13.90	9.58	8.93	0.08	1.01	71.73
1996	2.51	0.55	3.06	2.84	3.01	11.54	3.01	8.29	8.33	3.37	0.19	0.37	47.07
1997	1.31	1.59	1.21	3.99	2.67	8.91	7.53	4.50	8.10	0.25	6.09	5.93	52.08
Mean	1.96	2.10	2.88	1.95	3.68	9.36	8.79	8.59	8.29	3.59	1.46	1.56	54.20

a. More recent data for these data series can be obtained from the hydrologic data base DBHYDRO. For more information contact Angela Chong (SFWMD) at (561) 682-6514.

# FREQUENCY ANALYSIS

## 1-in-10 Year Drought Event

Water supply needs of existing and future reasonable-beneficial uses are determined based upon meeting the needs of a 1-in-10 year drought event (Section 373.0361, (2)(a)1 F.S.). However, this section did not describe the methodology for determining 1-in-10 criteria. A 1-in-10 year drought event is defined as rainfall with a probability of exceedance of 90 percent for a twelve month period. This means that there is only a ten percent chance that such a small amount of rain will fall in any given year. Model simulations were used to analyze potential impacts on wetlands and aquifer levels within the LWC Planning Area under both average and 1-in-10 year drought event rainfall conditions.

## Statistical Method

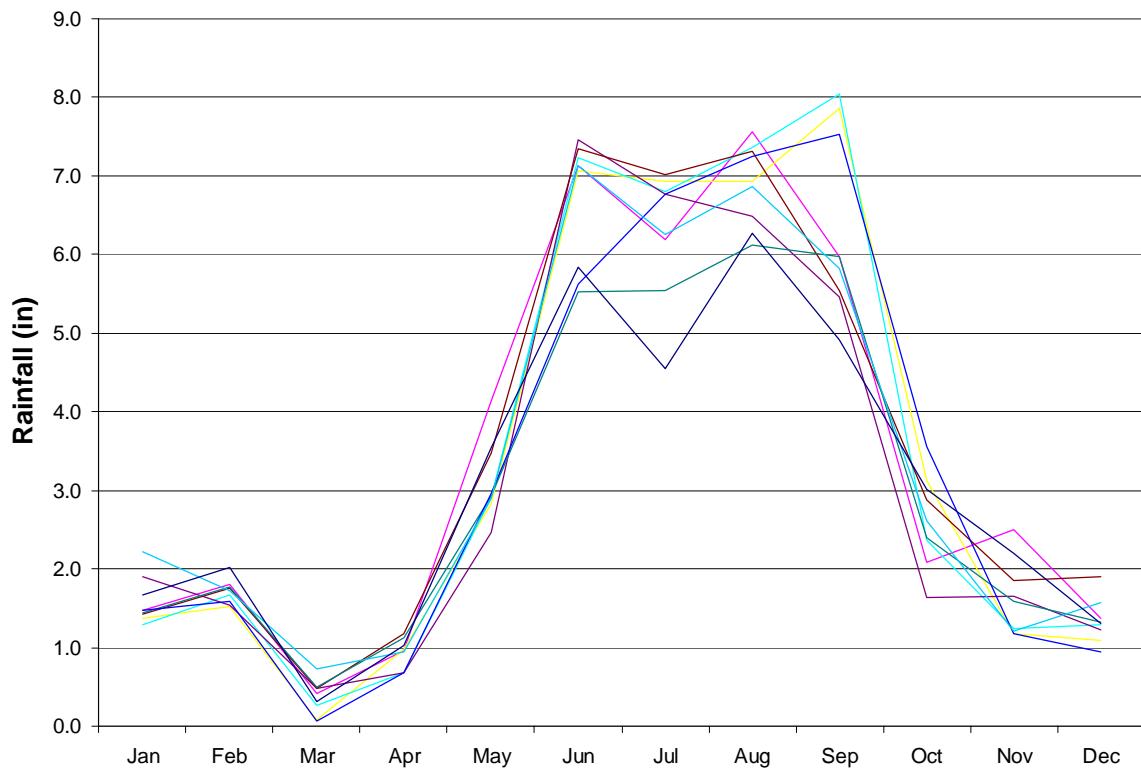
The statistical approach utilized here requires selection of an initial month and an analysis of twelve cumulative rainfall data sets following this month. March was selected as the beginning of the rainfall year because it is a critical month in the growth cycle of citrus. The method used to calculate 1-in-10 rainfall is most precise at the beginning of the calculation period, therefore a calculation year starting in March is used. A statistical rainfall frequency analysis was performed on the March rainfall data for each station. Similar analyses were performed on historical rainfall for durations of two months (March through April) through twelve months (March through the following February). Estimates of 10 percent drought frequency rainfall were made for each duration and individual month amounts were obtained by subtraction of consecutive cumulative amounts. For example, the November rainfall amount was obtained by subtracting the cumulative March-November drought frequency estimate from the cumulative March-October estimate. This analysis produces a set of monthly values that has a constant cumulative drought frequency of 10 percent. With the exception of the initial month of March, drought frequencies were not determined using the individual monthly rainfall amounts.

Each rainfall time series was fitted to the logarithmic-normal probability distribution. The logarithmic-normal distribution is useful in defining many hydrologic random variables where the values of the variate are the result of underlying multiplicative factors and are known to be strictly positive (Alfredo et al., 1975). This distribution has been previously used to define rainfall. A nonparametric test was performed on each of the time series to assess the goodness-of-fit to the assumed underlying probability distribution. The values for 1-in-10 year drought events are listed in **Table B-11** and the statistical 1-in-10 year drought event plots for the nine rainfall stations are presented in **Figure B-3**.

**Table B-11.** Statistical 1-in-10 Year Drought Events (inches) for Rainfall Stations.<sup>a</sup>

Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Sum
Clewiston	1.7	2.0	0.3	1.0	3.5	5.8	4.5	6.3	4.9	3.0	2.2	1.3	36.7
Devils Garden	1.5	1.8	0.4	1.0	4.1	7.1	6.2	7.6	6.0	2.1	2.5	1.4	41.6
Everglades	1.4	1.5	0.1	1.0	2.8	7.1	6.9	6.9	7.9	3.1	1.2	1.1	41.0
Fort Myers	1.3	1.7	0.3	0.7	2.9	7.2	6.8	7.4	8.0	2.4	1.2	1.3	41.2
Immokalee	1.9	1.5	0.5	0.7	2.5	7.5	6.8	6.5	5.5	1.6	1.6	1.2	37.8
LaBelle	1.4	1.8	0.5	1.2	3.5	7.4	7.0	7.3	5.5	2.9	1.8	1.9	42.2
Moore Haven	1.4	1.8	0.5	1.1	2.9	5.5	5.5	6.1	6.0	2.4	1.6	1.3	36.2
Naples	1.5	1.6	0.1	0.7	3.0	5.6	6.8	7.2	7.5	3.6	1.2	1.0	39.6
Punta Gorda	2.2	1.7	0.7	0.9	2.9	7.1	6.2	6.9	5.8	2.6	1.2	1.6	40.0

a. Calculations Start with March.

**Figure B-3.** Statistical 1-in-10 Year Drought Events for Rainfall Stations.

## REFERENCES CITED

- Alfredo, H., S. Ang, and W.H. Tang. 1975. *Probability Concepts in Engineering Planning and Design*. New York: Wiley and Sons.